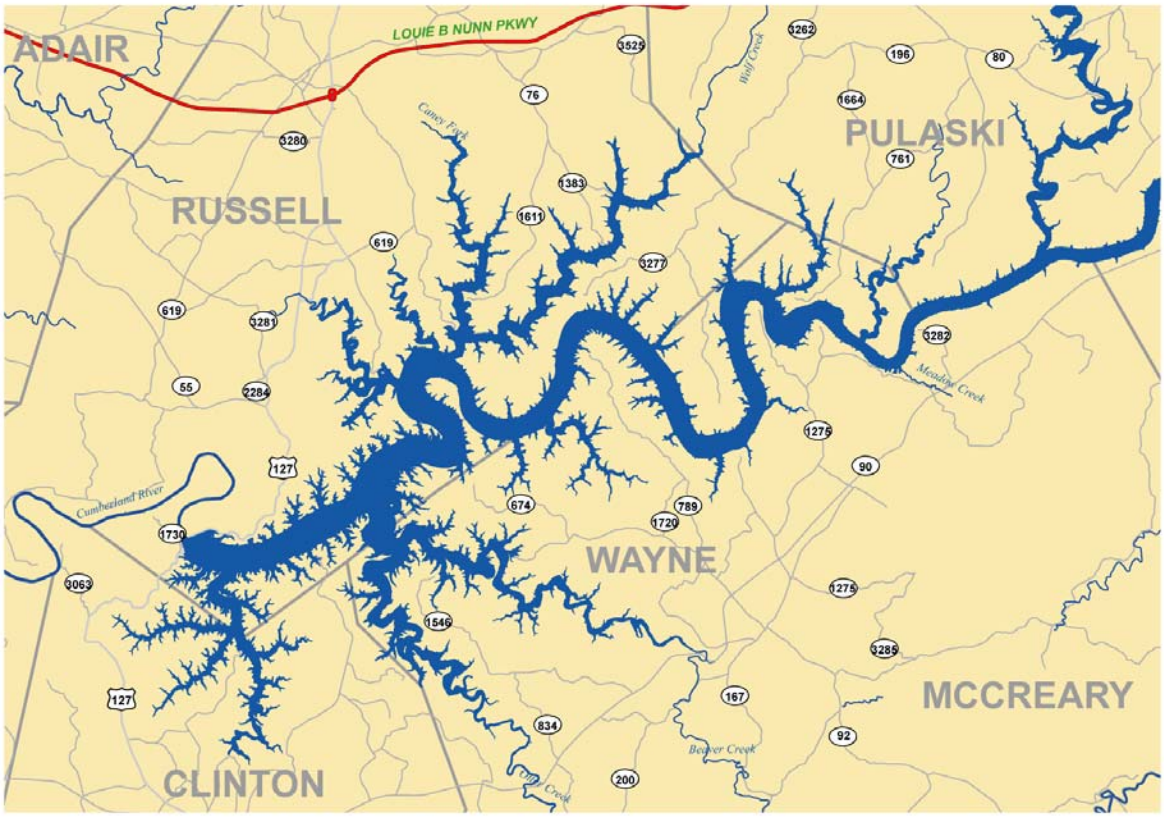
Lake Cumberland Bass Assessment 2007

Lake Cumberland is a U.S. Army Corps of Engineers mainstem reservoir on the Cumberland River in south central Kentucky. This 50,250-acre reservoir was impounded in 1950 with the completion of Wolf Creek Dam (located at Cumberland River mile 460.9).

Water levels in Lake Cumberland can fluctuate 50-foot annually due to hydroelectric production, with a normal summer pool elevation of 723 ft mean sea level (msl). In 2007, the water level was reduced to 680 ft msl to reduce pressure on Wolf Creek Dam and reduce the likelihood of failure. The water level may remain lower than normal for the next several years while the dam is being repaired.

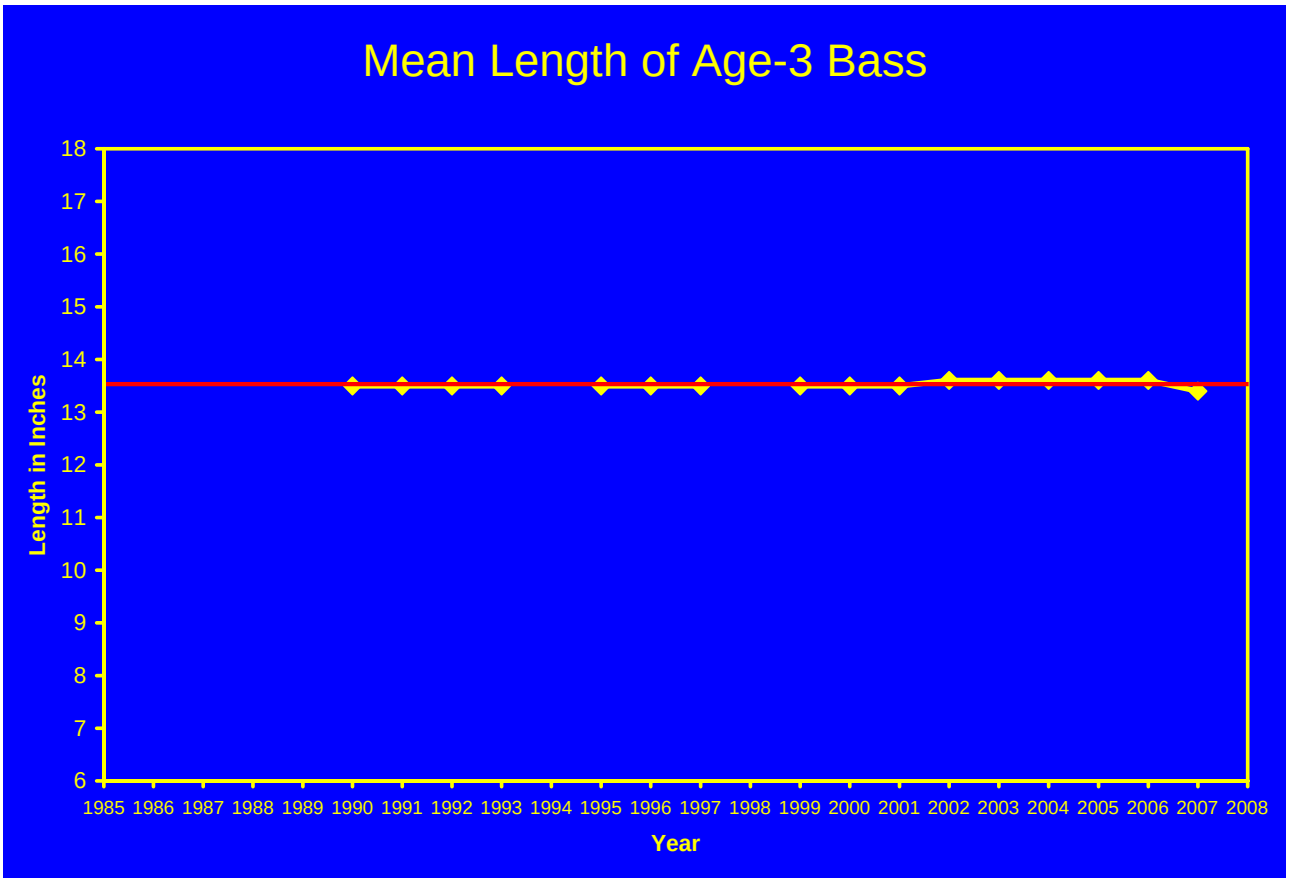
In early spring 2007, KDFWR initiated a habitat enhancement program on Lake Cumberland to provide cover for young bass and crappie. KDFWR, Corps of Engineers, and local volunteers deployed over 1,000 treetops in shallow water areas of Fishing, Caney Fork, Otter, Wolf, White Oak, and Faubush creeks. KDFWR personnel plan to continue partnering with the Corps and local citizens to add cover to the lake while the lake levels are low. The habitat work coupled with the natural revegetation of newly exposed shoreline areas should provide needed cover for the bass populations when the lake levels eventually rise.

Lake Cumberland contains three black bass species: largemouth, spotted, and smallmouth bass. According to the most recent creel survey in 2004, largemouth bass comprise about 38% of the black bass catch in the lake. Although largemouth bass can be found throughout the lake, they are most concentrated in the upper one-half of the reservoir.



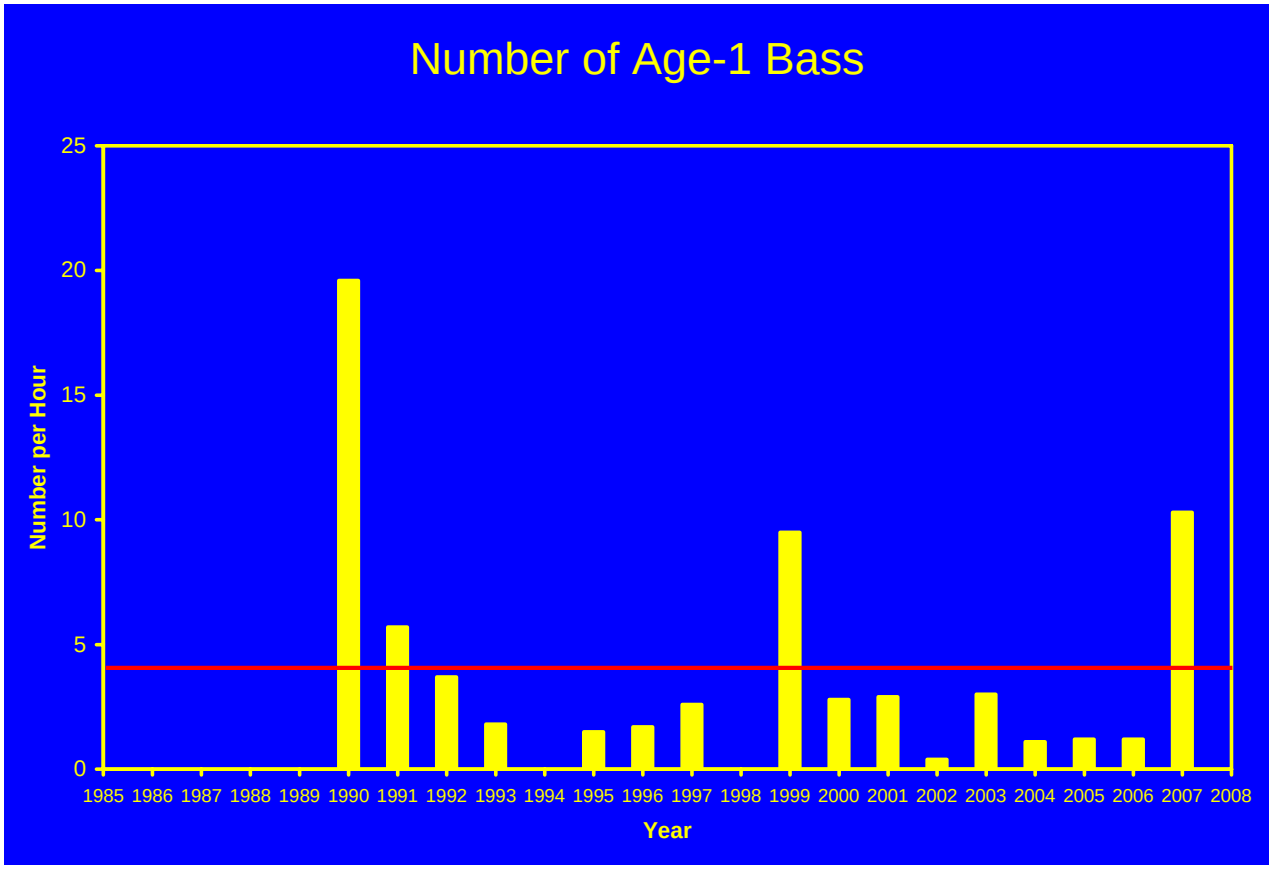
Parameter 1 – Length at age-3 (growth rate)

At Lake Cumberland, the length of an age-3 largemouth bass has averaged 13.5 inches since 1999. This is considered to be an excellent growth rate for largemouth bass. The growth rate has remained remarkably consistent since 1999, indicating that the largemouth have sufficient food resources in the lake.



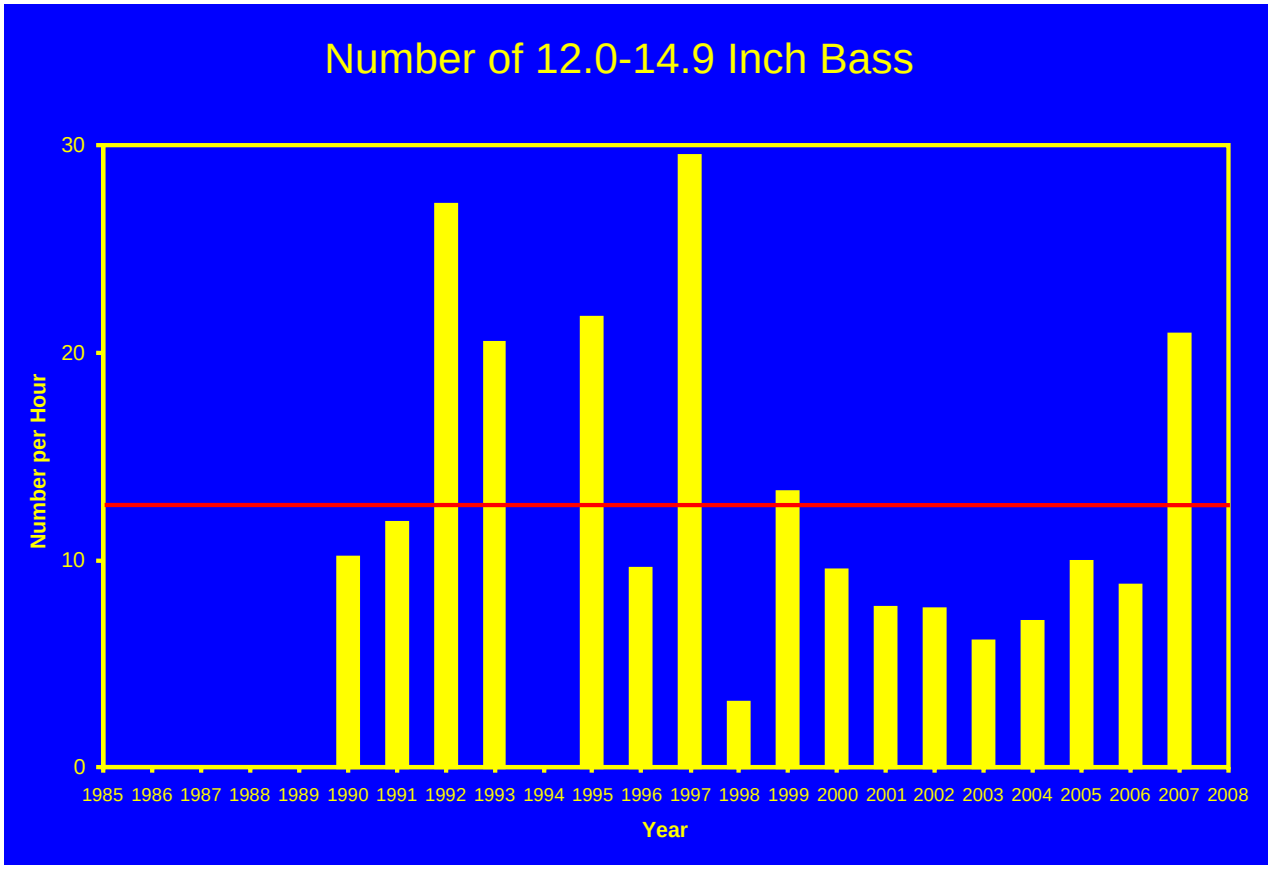
Parameter 2 – Numbers of age-1 bass (how good the spawn was)

KDFWR looks at the electrofishing catch rates of age-1 largemouth bass in the spring to assess the success of the spawn which occurred in the prior year. This is an important parameter because the number of bass produced represents how good the fishing will be once these fish grow large enough for anglers to catch. At Lake Cumberland, age-1 largemouth bass catch rates have averaged 4.3 fish per hour of electrofishing. Although this catch rate is considered poor when compared to other lakes in the state, the spawn at Lake Cumberland has been sufficient to maintain adequate numbers of largemouth bass in the lake.



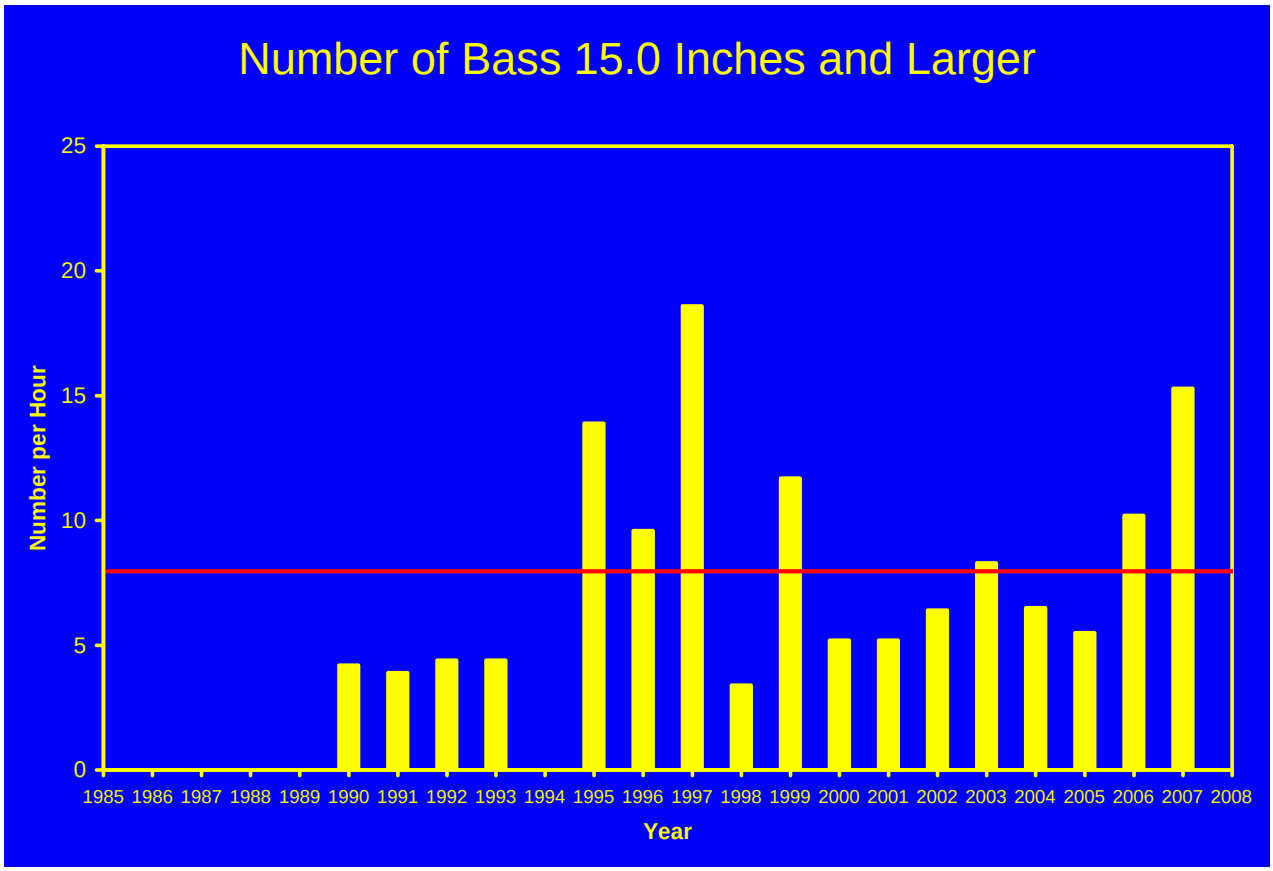
Parameter 3 – Numbers of 12.0-14.9 inch bass

The electrofishing catch of 12.0-14.9 inch largemouth bass has averaged 13.2 fish/hour over the years. Numbers of bass in this size range has been lower than average since 1999 with the exception of 2007. The higher catch rate noted in 2007 should be viewed with caution since the lowered lake level may have enhanced our electrofishing efficiency.



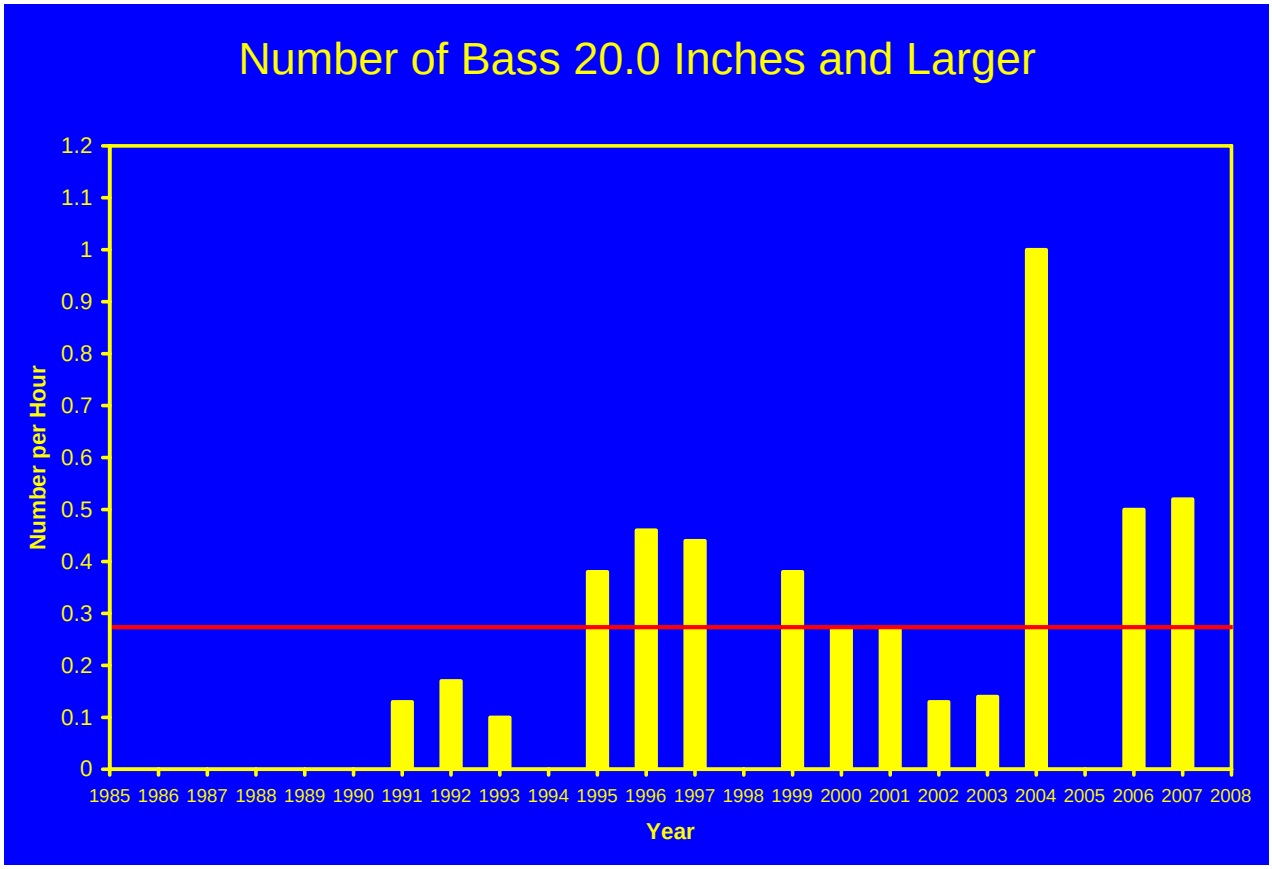
Parameter 4 – Numbers of 15.0 inch and larger bass

The catch rate of 15.0 inch and larger largemouth bass at Lake Cumberland has averaged just over 8.0 fish/hour of electrofishing. This is a fair catch rate for this size group when compared to other lakes in the state. The 2006 and 2007 catch rates were both above the historical average for Lake Cumberland and the 2007 catch rate was the highest since 1997. Again, caution should be used in interpreting the 2007 rates since the lowered water level may have enhanced our electrofishing efficiency. Regardless, it appears there are adequate numbers of quality bass in the population.



Parameter 5 – Numbers of 20.0 inch and larger bass

The electrofishing catch of 20.0 inch and larger largemouth bass has averaged about 0.3 fish/hour for Lake Cumberland since 1990. As compared to other lakes in the state, this is considered a fair catch rate for this size group. On a positive note, catch rates of these large fish have been above the historical average in three of the past four years.



Overall – Total Assessment Score (All five parameters added together)

Overall, the largemouth bass fishery at Lake Cumberland has averaged a fair rating (10) over the past 18 years. The relatively low catch rates for the various size classes have detracted from the assessment in most years. Our electrofishing efforts are designed to assess the total black bass population, not just the largemouth bass. This approach likely dilutes our largemouth bass catch rate because we sample some areas that are better suited for spotted bass or smallmouth bass. Although the largemouth bass population has averaged a fair rating on a lakewide basis, the population would rank higher in certain areas of the lake. Furthermore, the excellent growth rate exhibited by largemouth bass in the lake and the relatively high proportion of larger fish in the fishery bode well for the future.